REMEDIAL EVALUATION STUDY

FOCUS GROUP RESULTS

ROCK CREEK DISCOVERY CENTER
ROCK CREEK PARK
WASHINGTON, DC

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March 20, 2002

INTRODUCTION

Remedial evaluations are carried out on a completed exhibition with the express purpose of determining how well its goals and objectives have been realized and, to the extent they have not been, recommending appropriate corrective changes to the exhibition. This methodology recognizes that even though earlier evaluations may have been carried out (e.g., Front-end, Formative, and/or Critical Appraisal), there are factors that influence the effectiveness of exhibits that do not come into play until all the elements are in place and the intended audience can use them *in situ.*

In the present instance, it was possible to carry out a Critical Appraisal of the early planning documents of the Discovery Center Exhibit and to discuss them with key Park Service personnel responsible for its development. Based on these inputs, a Critical Appraisal Report was prepared and submitted 30 October, 2000. The main thrust of this report was to caution against trying to cover too much content in the small space available in the Center and to be sure the content that was covered was done so in a manner consistent with the educational level of the intended audience. To quote from that report:

Given the limited space, the nature of the intended audience and the amount of information to be presented, every effort must be made to focus on the important things and put aside the less important. If this can be combined with an adequate level of preparation on the part of students before the visit and follow-up after the visit, and if the size of any one group in the exhibit area can be kept small, there is every reason to believe that the Discovery Center Exhibits will be educationally meaningful to its young visitors.

In a number of important ways, the completed exhibition reflects these comments. In one significant way, however, it does not. This has to do with the preparation of students before a visit and the follow-up after the visit. It was not possible to carry out this phase of the work before this study was done, and so we cannot address the extent to which such material would have made a significant and positive contribution to the educational impact of the exhibition on students.

It should be kept in mind that the small numbers of participants typically used in focus groups do not provide the kinds of quantitative data and "representativeness" that one would expect to get from large-scale surveys. However, previous focus group studies conducted for the National Park Service have been shown to provide extremely useful *qualitative* information about the kinds of responses that one could expect to get from visitors with similar characteristics. Thus, the two student groups and the teacher group that were part of this study are considered sources of valuable insights that will help inform the remediation process to follow. To this end, each group will be reported on separately, based on the audiotapes, followed by a set of recommendations for possible exhibit changes or modifications. Except where otherwise noted by quotation marks, and in the interest of clarity and conciseness, actual comments will be paraphrased and condensed.

STUDENT GROUPS

Introduction

In keeping with the primary target audience for the proposed exhibit, two student focus group sessions were carried out at the Rock Creek Discovery Center on January 17, 2002. The first group consisted of ten 6th grade students from the Owl school in Washington, DC. (private school). There were 7 girls and 3 boys in this group. The second group consisted of 8 students from the Marie Reed Community Center in Washington, DC. There were 2 girls and 6 boys in this group, all of whose parents were from Central or South America. With the exception of one boy, they all understood and could read English as a second language. Most of these students were in the 6th grade and a few were in the 5th grade.

Upon their arrival at the Discovery Center, both groups were given a short orientation by the facilitator that explained the purpose of their visit. They were told that they would be given about 20 minutes to take a good look at a new exhibit that was designed for their age group, after which they would be asked to comment on the things they liked, did not like, and how much they were able to learn from the exhibit. It was emphasized that they were there to help the Park Service improve the exhibit and that they were not being "tested". They were told to look, do, and read as much as possible during their time in the exhibit area. Following this, each group was taken to a room where the facilitator could engage them in a 30-minute conversation about their exhibit experiences.

An OMB approved protocol was followed in both the orientation presentation and in the conduct of the post-exhibit discussions with students.

Results – Student Group # 1:

The following comments were made in response to the question "What did you like most about the exhibit?"

The bones and wings of animals that were in drawers, and the microscope.
The rain thing with the lights. More things like that.
More things with buttons.
The computer where you could hear the sounds animals make.
It was very interactive and you could touch things.
The microscope where you could see things really up close.
The smell thing. "But don't inhale too deeply."
The way you could get answers to questions right away by lifting the door.
It was small and we could do everything.

The following comments were made in response to the question "What things didn't you like about the exhibit?"

You had to wait in line to use the computer.
It needs to be expanded with a couple more computers and more games.
You could not take things out of the drawers.
There could be more things to look at in the microscope.
Some of the smells were not very good. "Bothered my nose."
Some smells did not smell like anything.

I did not get to use the computer.
More educational games.
Have a person in the exhibit that could help you with things and show you what to do in the exhibit.
Should have games where you get a score or even a prize of some kind.
You didn't see how the creek really entered the river.
More information about invertebrates.
You could not take some of the stuff out of the drawers and it was hard to see what it was.

The overall impression that came out of this lively opening interchange was that they like exhibits that have real things that you can touch, interactive games, and computers. They wished that the Discovery Center Exhibit had more of each.

The group was asked to comment on the idea of a watershed – what they are and why it is important to protect them. The conversation showed only a basic understanding of the subject by most of the participants. However they were able to offer a variety of suggestions for protecting them. The need for clean water was noted by many in the context of not polluting and not throwing litter into streams and rivers. One student seemed to confuse water table with watershed. Another wondered why the word "shed" was used when there was no shed.

The subject of habitat was introduced and almost everyone raised their hand when asked if they knew how to define a habitat. However, most of the answers were at a very basic "a place where things live" level. The notion of the uniqueness of each habitat was missing from the animated conversation. When asked how many habitats were shown in the exhibit, over half raised their hands. It took awhile, however, before they decided as a group what the three were. Once stated everyone agreed "they were the ones." The need to take care of habitats was well understood. It seemed to be almost self-evident to most of them that we must take care of the environment for the well being of all living things including us. The need for clean air was often noted as equally important to taking care of the land. Hair spray and car exhaust was mentioned and the ozone layer was brought up twice.

The question about what different kinds of things people can do in Rock Creek Park drew a wide variety of responses. One had the feeling that the answers came from their personal knowledge of outdoor activities and not specifically from the exhibit itself. However, one student mentioned testing the water, which was an exhibit-specific response but one that had to do more with taking care of the park.

When asked about previous uses of the Park there was a decided lull in the conversation. Finally someone mentioned the Civil War and then another said that she noticed trees that had things carved into the bark, like names and different shapes. (Apparently she thought that this must have been done by early settlers, similar to finding Indian petroglyphs!) The Pierce Mill was mentioned and several knew what was made there.

When asked if Rock Creek Park is a city park, a county park or a national park the vast majority raised their hand to national Park. When asked why they thought that, several noted that it protects forests and wildlife for the whole country and that people come from all over the world to see it. Another said that it is protected by laws that forbid anyone from taking things from the park. "It is big, but not as big as other national parks out west."

Several final questions were asked to get a general response to what they got to use and how they liked it. Two members of the group did not get a chance to use the computer. Those that did liked it a lot. Everyone used the microscope and at least one of the pullout drawers. Comments on both were very positive, but the drawers got special mention. They did not think that labels should be added to the drawers. Somewhat

surprisingly, the most enthusiastic response to these questions came when asked how they liked the flip-up panels. It may be that these items came the closest to the "game" notion that they all wanted to see more of in the exhibit.

None of the students thought that the text material was too difficult for their grade level.

Observing this group during their inspection of the exhibit suggested that they were highly motivated and very interested in the content. They were attentive to all the various elements of the exhibit. They also interacted in a positive way, often discussing things with each other or pointing out things of particular interest to them. They were clearly enjoying the experience.

Results – Student Group # 2:

The following comments were made in response to the question "What did you like most about the exhibit?"

The computer where you could hear the sounds animals make.
The fossils.
Snake skin.
The animals.
I liked everything. (This comment was audibly echoed by most of the group.)
I liked the stuff about the Civil War and the teeth of the rabbit.
I wouldn't change anything.
The fossils and the things you could look at with the magnifying glass.
I liked the pictures showing all the animals in their habitats and the sounds of the animals.

The following was the only comment made in response to the question "What things didn't you like about the exhibit?"

I did not like the snakeskin or the animal tail.

The overall impression that came out of this interchange was that while the group as a whole seemed to like and enjoy the exhibit, their comments were very tentative as if they were not comfortable with (or used to) being asked for their opinions, especially critical ones. The fact that only one "don't like" comment was made seems to be consistent with this. In contrast to the first group where everyone wanted to talk at once, there were long periods of silence in this session, broken only by the repeated prompting of the facilitator.

When asked to talk about and describe a watershed there was great initial hesitation to say anything at all. Finally, a few offered some comments, but they were at a very superficial level – mostly about rain falling on the ground and on streets. All of them used the watershed interactive and seemed to like it, but based on these responses, it did not seem to convey much in the way of substantive information. When asked if a watershed is something that we should take care of or protect, one student said simply "Protect it." That was the extent of the response!

The notion of "habitat" got a somewhat more active response. The one student who did not speak English (and for whom an NPS person translated the conversation and his remarks) offered this interesting comment: "It's where the animals live, where there is water, and where they are happy." Another comment was made along the same lines – "Where a bear or beaver can make a place to live and be safe from other animals and live in peace." Another "it is home for animals" response was made. (One may wonder if this simplistic and naïve notion about the life of living things in the wild is appropriate, but it is the message that the exhibit seems to convey.)

After considerable time, one student was able to name two of the habitats depicted in the exhibit, and then the third one was noted by another student. The importance of taking care of habitats was explained in terms of making a place where animals can live. When asked what kinds of things can destroy a habitat they mentioned fire, hurricanes, war and tornadoes. There was one mention of pollution, but this was not picked up and expanded upon by others. The exhibit's message in this area did not seem to be communicated to this group.

When asked what some of the things are that the Park is used for – that people can do in the Park – there was no response. When asked about earlier uses of the Park one student mentioned the fact that there were Civil War battles fought in the Park.

The group as a whole agreed that Rock Creek Park is a national park rather than a city or county park. The several reasons given had to do with the fact that there is wild life in the Park and that people can come from all around the world to visit it.

Two members of this group did not get to use the computer. One student said that the mouse was hard to use because you could not move it but he finally "figured it out." Another student found it "frustrating" that not all animals shown on the screen could be clicked on - like the snake. (When the smart facilitator noted that snakes do not make a noise, a smarter student pointed out that rattlesnakes **do** make a noise!)

Everyone in the group said that they got to use the microscope and that it was "fun to use." Likewise for the discovery drawers. There were no comments made about the difficulty level of text material. The one non-English-speaking student said that he did not read the text at all. When asked why not he said that he was more interested in looking at things and doing things. Four students said that they read some of both the Spanish and the English texts. No preference was expressed for either one.

When asked for any additional comments, there was a question about where the snakeskin came from and whether the insects in the exhibit were real or models. The attraction of (and curiosity about) "real things" comes through again.

The two girls in this group did not participate at all in any of the group discussion. When asked at this point if they had anything they would like to comment on, they would only quietly say that they liked the exhibit. When the group was asked (as a final question) if they would recommend the exhibit to their friends as something they ought to see, there was a universally positive response.

The behavior of this group in the exhibit area was quite different from that of the first group. There was a lot more "random movement" in the exhibit space and more than a little "horse play" among the boys. (One boy was observed chasing other boys around the area with the animal tail, trying to hit them over the head with it!) Such behavior is not that atypical among school groups in this age group visiting museums – in fact it may be closer to the norm, especially for boys. However, in contrast with the more studious behavior of the first group, this difference is noteworthy.

Also to be considered in this analysis are cultural differences in the way the two groups of children respond to unique situations. In the exhibit area the second group seemed to treat it as place to have fun and explore things, not a place to study and read. In contrast, the focus group situation was seen by them as the place where they were expected to be more reserved and respectful in the presence of an "authority figure." The "US" students were much more vocal and assertive in this situation and thus seemed to be (were?) more knowledgeable and informed.

TEACHER GROUP

Introduction

Elementary teachers from Washington, DC schools, representing a variety of grade levels, arrived at the Discovery Center after school duties on the 28th of February, where they were given an introductory orientation to the purpose of the project and the role they were to play in it. They were asked to view the exhibit from the perspective of how it could be used both as an adjunct to classroom activities as well as how effective it would be as a "stand alone" experience for children at grade levels 5, 6 and 7. They were encouraged to look for elements in the exhibit that would be especially helpful to students as well as those that might be problematic. Note pads were provided. After spending 35 minutes in the exhibit area, the group was assembled together for the discussion period, which lasted a little over one hour. Because of the importance of the comments made by this group, each participant's contribution will be noted separately along with their school, grade level(s), and teaching specialty if any.

Results/Comments

Washington International School – 1st grade. Liked the way the area was segmented into separate sections representing the three habitats. The computer display was too fast. Things came up and disappeared before you had a chance to see what they were. Also, not everything in view could be clicked on so why were they there? You can hit your head over the smell area if the door is open. (?)

River Terrace – 3 through 6. The watershed exhibit was too fast. There should be a pause at each stage with a brief statement about that particular area. The main exhibit panels show only one season – does not show cycle of seasons. Each habitat is different in each season. This is an important notion to convey to students. Some of the (flip?) panels are too high for small children to reach. Also, the lighting is poor behind all of the flip doors because of shadows. "I couldn't see the sassafras root bark because of the shadow." Computer instructions were entirely too fast. "Non-click" animals are distracting to children. They click but nothing happens. The repetition of the computer content with the content of the wall murals is very good.

Lowell School – 1 through 6, environmental science. The whole concept shown here is what I teach. The question and answer technique is very good. (Flips?) The watershed is much too fast. There is a lot of reading. Not sure how much even older kids will want to do. Especially less able students. The exhibit would serve nicely as support for my own classroom work. (The other teachers added their agreement to this comment.) The things to touch here are a major plus from what I do in the classroom.

Horace Mann School – K through 3rd - Science. I think this is excellent. I would only be bringing younger groups. The visuals are very good but the amount of reading would be prohibitive for younger children. It was actually difficult to read the text. "It blended in too much with the background." The hands-on material was very good. The ID cards that were used with the drawers would be confusing for younger children. They would not have the patience to "fool around" with the cards to find out what it was. Need more information on what each smell is and how it relates to the habitats.

A comment "from the floor" was interjected about how much consideration was given to disabled students in designing the exhibit. "The flip panels would be a real problem for many of our students. Also opening the drawers. Information on this subject should be included in the Parent/Teacher Guide." (This comment was made by a teacher who works with disabled students.)

1st Grade (name of school not intelligible). Exhibit very attractive for young students. Very visual. But the language used in the text material is very complicated for the younger age group. This applies to both the English and the Spanish versions. She also noticed some mistakes in the translations. (This teacher said that she would send a note about this – she copied some of the mistakes.) There should be a discussion of the different kinds of forests. Her students know about jungles, rain forests, etc. and here there is only one kind shown. It would be nice to have a "quiet area" away from the exhibit itself where you could gather the class together and have a conversation about what they saw.

Marie Reed Community Learning Center. This exhibit will help in her teaching and field trips a great deal. (She teaches in a global learning program that often uses Park facilities to enhance their work.) The exhibit is very informative about the variety of plants and animals in the Park – things she did not know before. The separation into the three areas makes it especially helpful. The computer program is too fast – should be slowed down. Could there be an upgrade to that program that would give more in-depth information about the animals? The computer gets their attention but it does not go beyond the surface. It would be good if you could see some of the microorganisms that live in the creek – have slides of them for the microscope. Also, something about water quality would be good to add. "I had a group of 6th graders here and I had a hard time getting them out of the exhibit. The younger age groups just kind of brushed it." There seemed to be connections between this program and others that are here like the planetarium. "Is this supposed to be a summary?" Light pollution was given as an example. "The smell area was hard for me. I bumped my head. That might need to be changed just a little." Cedar shavings were too weak. The microscope images were not very clear ("Hard to adjust") and there was no easy way to get more information about what you were looking at.

(Identification not clear – 4th Grade Spanish Teacher, works with Elsie Woodloso?) The colors used are attractive and beautiful. But the text in Spanish is not very clear. Too many types of letters and colors - they don't know what is important for them. There is too much information given. Most children are not going to read so what there is has to be very clear and to the point. "I think it would work the same for 6th or 7th grade levels." It would be better if they could touch things and then they could hear about it. The drawers – you can see things but you don't know what they are. You have to find the cards. The information on the flip doors is not very clear. They love computers but this one needs to be moved out where they can see it. (Several others joined in at this point to comment on the need to have more than one computer.)

Sidwell Friends School – 8th Grade Environmental Science. Teaches other grades as well. Has worked extensively with the Park on various projects. Made extensive comments on the difficulty of having a large group of children trying to use the small area of the exhibit. "Even 15 would be a problem but a class of 30 would be impossible." Kids today are not readers. They play games or watch TV where things happen for them. They need to have material where they are asked to answer certain questions so that their attention is focused on what is important to learn. Without some kind of structure to the visit they will simply use the area to play around in. Pre and post teacher materials would be very important to support the exhibit experience.

Horace Mann School – 6, 5, 4 Science and Pre-K. Liked the fact that it was about an urban national park and thinks more could be made of that fact. Liked the listing of objectives at the beginning of the exhibit. " I would not let a group of students loose in the exhibit and certainly not more than 15." The content is good and at the appropriate level for 5th of 6th grades, but they will not read it by themselves. To be effective you would have to lead them through it and then have some kind of guided experience afterwards. The computer was great – "I liked the fact that it was simple for a change. I would start them with the computer and see if they would recognize that the animals are the same ones that are on the big panels." Parent Teacher Guide

very good where the objectives are repeated. The watershed panel is the weakest. "Too fast and too hard to realize that it is a map of the DC area." Need to figure out a way to let kids stop it and then re-start it. Loved the drawers but need to locate the laminated cards better. The Watershed page is not too clear. Needs to be more directed to the display – "Push the red button, look for the rain coming down" etc. Could have questions on it with room to write answers.

It was very clear from listening to this group of teachers that they were enthusiastic about the exhibit "as it stands" as a teaching/learning tool. Their comments and suggestions need to be taken in this positive context.

RECOMMENDATIONS

Given the qualitative nature of the focus group methodology, one does not rely solely on frequency counts to find ideas that are important and useful. Thus, a careful reading of all of the above material is suggested to help arrive at the best set of proposed changes to the exhibit. However, it is recognized that there would be less than total agreement as to what that "best set" would be among those who need to make these kinds of decisions. Not only do personal opinions play a role, but also to be taken into account are the amount of resources (funds and time) available for making revisions. The recommendations listed below represent those believed by the author to be the most useful and practical from the perspective of the educational effectiveness of the exhibit, using the original set of objectives as guidelines.

1. Develop support materials for pre, during, and post exhibit student activities. These should not be extensive (teachers won't use them) but should be focused on the primary teaching objectives of the exhibit. The use of specific questions that can be reviewed before the visit, completed in writing during the visit, and reviewed again after the visit, would be the kinds of things that would help to insure that the content is attended to and the important points learned. It would be possible to develop more than one set of such materials for different grade levels. Perhaps one set would suffice for the 5, 6, and 7 levels, and another set for the lower levels. In any case, such materials should be prepared with the input of teachers (including Spanish-speaking teachers!) and should be pre-tested with students (including Spanish-speaking students!) before being put to general use. The Parent Teacher Guide and the Watershed handout may need to be revised as part of this effort.

2. The Watershed display should be made more accessible to students. It is a fine example of an exhibit that has very high attracting power but low holding and communicating power (although many students did hit the red button more than once!). It is too fast as presently designed and does not allow the user to take the time to attend to and absorb its messages. Several suggestions were made in the above teacher comments that included stopping it at key points, and adding audio to explain what was happening. The fact that the area depicted on the stylized map is in DC should also be given more emphasis.

3. The computer software program should be "slowed up." There is not sufficient time to read the instructions and pay attention to the content. If it were possible to add another computer unit, the inevitable backup that occurs when groups are in the exhibit area could be reduced. The present location of the computer is not ideal. Some way of drawing attention to it should be considered.

4. The Spanish version of all text materials should be checked for accuracy.

5. The lighting throughout the exhibit area should be checked to be sure there are no shadows obstructing text or graphic material. This should include the shadows cast by the visitors themselves.

6. The system for identifying the contents of the drawers should be modified so that it is clearer, simpler, and more self-evident to the user.

7. The "smell" area should be examined to see if it could be made more useful. The smells seem to be less smelly than they could be. Also, the "head-bumping" phenomenon in this area needs to be looked at.

8. The microscope experience would be enhanced by having clearer (and more) specimens and better descriptions of their content. Since this seemed to be one of the most popular (and crowded) areas of the exhibit (with one of the drawers and the microscope right next to each other) it would be helpful to have another microscope a distance away to relieve congestion. (The idea of having a slide or two showing microorganisms from the creek should be considered. It would make the point that the range of living things in a given habitat is very diverse.)

9. Adding "real things" to the exhibit that children can pick up and touch would add to its interest and excitement level. It seems to be a consistent finding in these studies that children are attracted to real objects. In this case, "More is better!"

10. There is no doubt that there is more text in the exhibit than any student at the projected grade levels is going to read. We know this from the student observations and student comments (even from the more motivated and attentive first group) and from the repeated comments to that effect made by the teachers. The first recommendation above will help to address this problem to some extent, but even then there would be a big gain in attention and learning from any reduction in text and/or better formatting of text to highlight critical points and messages. (We can't forget that not all those attending the exhibit will be school groups.) Looking at sentence structure and vocabulary would also be a part of this exercise. Also to be considered would be more use of high-contrast colors and a variety of interesting typefaces to invite attention and enhance reading ease. Whether or not this could be done without extensive reworking of the exhibit is not clear, but it is too important a point not to be considered.

11. The number of visitors in the exhibit area at one time is a major factor in how much will be gained from the exhibit experience. The second student group should be considered more the norm than the exception. If there were any way that student groups could be limited to no more than 15 at a time (less would be even better), the payoff in educational effectiveness would be very significant.

12. Three of the intended objectives of the exhibit were not well communicated, especially to the second student group. These are *activities in the park, things you can do to care for the park*, and *clues to the past.* While these might be considered secondary to the information about watersheds and habitats, they should be looked at again to see what might be done to give them more salience. It would certainly be appropriate to include them in whatever future teacher/student support materials that might be prepared.

Having noted the things that could be done to improve its effectiveness, it should also be noted in closing that the exhibit has many excellent features that reflect a high level of expertise in conceptualizing, planning, development, and execution. Even in its present form it is capable of conveying a lot of good information to students at the appropriate grade level, as demonstrated by the first student group and by the comments of the

teacher group. It is also an exhibit that students like to use, as shown by the many positive comments to this effect from all groups. Simply put, it is an enjoyable exhibit to be in and use for a wide range of age groups, including adults. This makes it an excellent foundation upon which to build an even more effective teaching/learning exhibit. It is hoped that the results of this study will contribute to this realization.

The National Park Service is to be commended for recognizing the value of well-designed exhibits and the role they can play in helping to meet the educational needs of our children.